

REMARKS/ARGUMENTS

I. Claim Rejection under 35 U.S.C. §102(b)

In the subject Office Action, independent claims 1 and 10 were rejected under 35 U.S.C. §102(b) as being anticipated by Gilbert. Independent claim 19 was similarly rejected but under 35 U.S.C. §103, in that the Examiner noted that the recited application was not explicitly disclosed in Gilbert. Hence, independent claim 19 will be discussed in this section.

In response, Applicants have amended the independent claims 1, 10 and 19 to recite that:

“an operational amplifier..... to compare the peak detect voltage signal and the single reference voltage signal and to generate an analog bias signal in response to a difference between the peak detect voltage signal and the single reference voltage, with the current source (or “current source transistor”, in the case of claim 10) being adapted to adjust a magnitude of the source current in response to the analog bias signal”.

The Examiner references the various embodiments of FIGS. 4-9 (and particularly FIGS. 5 and 7) of Gilbert as disclosing the present invention. FIG. 5 provides an alternative arrangement for generating the V_{CONTROL} in FIG. 4 and FIG. 6 and 7 illustrate alternative embodiments of the bias circuit 22 used in FIG. 4. FIGS. 8 and 9 provide more detail for the circuits of FIGS. 4-7.

A. First Difference

The “analog bias signal” of the present invention is used to adjust a magnitude of the current from the current source. However, in FIG. 6 of Gilbert, the node N3 is coupled to ground and there is no current source (see column 7, line 59-67 and column 8, lines 1-5). In FIG. 7 of Gilbert, there is a current source Q3; however, for the arrangement of FIG. 7 to work, it also requires use of a V_{BIAS} signal 32 and a resistor network of R1 and R2, which is not needed in the present invention (see column 8, lines 6-19).

B. Second Difference

In Gilbert, the bias circuit 22 of FIGS. 4 and 5 receives the signal V_{CONTROL} from an integrator 26A (which integrates the signals), as compared to the operational amplifier of the present invention, which performs a comparison function to generate a difference signal (analog bias signal) representing the difference between the two signals, as now claimed in independent claim 1.

Gilbert states that "The integrator 26 generates the control signal V_{CONTROL} by integrating the output signal from the detector circuit 24. The bias circuit 22 controls the bias level of Q1 and Q2 in response to the control signal....." (column 7, 41-45) Likewise, Gilbert states that "The integrator 26A performs a summing operation on V_{REF} and the signal from the detector circuit..." (column 7, lines 57-58). In contrast, a description of the operation of the opamp 42 of the present invention is provided in paragraph 18, beginning on line 8. In particular, the following is described:

"The opamp 42 compares the reference voltage signal and the peak detect voltage signal and generates the nbias voltage signal, which is a bias voltage for the tail current source 32, i.e., the bias voltage for the gate of the transistor P3".

Accordingly, for at least the foregoing reasons, amended claims 1 and 10 are now patentable over Gilbert under §102(b).

II. Claim Rejection under 35 U.S.C. §103

In the subject Office Action, claims 2-4, 11-13, 16-23 were rejected under 35 U.S.C. §103 as being obvious over Gilbert in view of Ramet. Patentability of independent claims 1, 10 and 19 over Gilbert has been addressed above. Ramet does not remedy the above discussed deficiencies of Gilbert, thus independent claims 1, 10 and 19 remain patentable over Gilbert even when combined with Ramet.

Claims 2-4, 11-13, 16-18 and 20-23 depend from either claim 1, 10 or 19, incorporating their limitations respectively. Hence, these dependent claims, for at least the same reasons as described above with respect to independent claims 1, 10, and 19, are not obvious, and are patentable over Gilbert in view of Ramet.

Additionally, with respect to claims 2, 11, 21 and the capacitor C5 shown in FIG. 1 of Applicants invention, the Examiner states that:

“As would have been well known in the art, such location of the capacitor is to filter unwanted signals, known as a decoupling capacitor and would have been obvious to one of ordinary skill in the art to use a capacitor at the output of the operational amplifier 26 of Gilbert because such a modification would have been provided the benefit of filtering unwanted signals.”

However, the significance of the capacitor in this location is described in paragraph 15 of the present invention as follows:

“The size of the compensation capacitor C5 may be selected from a value of zero (resulting in just the gate capacitance as the feedback capacitance) to a small value to compensate for the high bandwidth of the feedback loop 28. The selection of the value of the capacitor C5 is based upon the loop stability.”

With respect to dependent claims 4, 13, and 23, the Examiner has stated that:

“having a plurality of identical components in the peak detect circuit and the reference voltage generator would have been obvious based upon a reduction of manufacture cost consideration”.

However, this speculative reason is not the reason for the duplication of components in the present invention. To the contrary, as stated in paragraph 22 of the present application:

“By designing the transistors of the voltage reference generator 44 and peak detect circuit 40 to be the same, it is possible to have tracking between the two, in the sense that process variations may have the same impact on the reference voltage generator 44 and the peak detect circuit 40.”

With respect to the rejection of claim 16 in view of Ramet, the variable capacitors recited in claim 16 are not the blocking capacitors recited in 3, 12, and 22, but instead are part of LC resonator circuits.

III. Allowable Subject Matter

The Examiner has indicated claims 5-9, 14-15, and 24-28 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicants greatly appreciate indication of allowable subject matter in present invention. Nonetheless, claims 26-28 have been cancelled, without prejudice.

The Examiner indicated that claims 5, 14 and 24 would be allowable because "the best prior art of record, Gilbert, taken alone or in combination of other references, does not teach or fairly suggest "the first detect and the first references, does not teach or fairly suggest 'the first detect and the first reference transistors are identical in design, and the detect and reference current sources are identical in design". Both currently amended claims 5 and 14, in addition to being dependent from now allowable claims 1 and 10 respectively, continue to include these recitations. Hence, in view of this reason for allowance, the Examiner should find that amended claims 5 and 14 allowable under his reasoning, even though amended claim 5 does not include recitations of the capacitors of original claims 2 and 4. Likewise, the Examiner should find that amended claims 14 is allowable under his reasoning, even though amended claim 5 does not include recitations of the blocking capacitors of original claim 12.

Claims 6-9 and 15 depend from claims 1 and 10, through at least claims 5 and 14, respectively. Accordingly, for at least the above discussed reasons, claims 6-9 and 15 remain allowable.

Claim 24, in addition to being dependent from now allowable claim 19, it has not been amended; hence, it remains in a form containing recitations which the Examiner indicated has allowable subject matter. Thus, claim 24 remains allowable.

Claim 25 depends from claim 19, through at least claim 24. Accordingly, for at least the above discussed reasons, claim 25 remains allowable.

IV New Claims 29-31

Claim 29 depends from claim 1 through claim 5, including recitations of claim 2 and part of the recitations of claim 3. Dependent claim 30 (depend from claim 29) has essentially taken the place of dependent claim 5 as previously presented, and should be considered to fall under the scope of claims indicated by the Examiner to be allowable. Likewise, dependent claim 31 has essentially taken the place of dependent claim 14 and should be considered to fall under the scope of claims indicated by the Examiner to be allowable. Accordingly, for at least the reasons indicated by the Examiner and/or the above discussed reasons, claims 29-31 are in condition of allowance.


V. Conclusion

In view of the foregoing, Applicants submit claims 1-25 and 29-31 are in condition of allowance. Early issuance of Notice of Allowance is respectfully requested.

The Commissioner is hereby authorized to charge shortages or credit overpayments to Deposit Account No. 500393.

Respectfully submitted,
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